

REMARKS

The Rejection of Claim 1.

The Examiner has rejected Claim 1 under 35 U.S.C. 102(b) as being anticipated by Craeger (5,425,274).

Applicant has requested that the Examiner cancel Claim 1.

The Rejection of Claim 2.

The Examiner has rejected Claim 2 under 35 U.S.C. 103(a) as being unpatentable over Craeger (5,425,274) in view of Perez (5,528,151).

Applicant respectfully requests reconsideration of this objection, as now applicable to (currently amended) Claim 2, for the following reasons:

(1) Craeger discloses a fuse made of the same material to be monitored (col. 3, lines 37-39). Craeger's selection of identical materials was consistent with industry standards and testing protocols for dynamic testing of materials to measure fatigue stress and fatigue life. The current invention is a departure from those industry standards and testing protocols for dynamic testing.

(2) Perez teaches the use of different materials because the Perez invention relies upon the fact that the material comprising the base **12** must have a different coefficient of thermal linear expansion (" α ") than the material comprising the test strips **16, 18, 20, 22** (col. 2, lines 32-36; col. 3, lines 32-38). Accordingly, Perez's rationale for using different materials is one of necessity whereas the rationale for using different materials in the current invention is one of convenience for the test engineer.

REMARKS (continued)

(3) Perez teaches the use of different materials because the Perez invention relies upon the electrical conductivity properties of the materials comprising the base **12** and the test strips **16, 18, 20, 22** (col. 3, lines 15-21). Accordingly the materials comprising the base **12** and the test strips **16, 18, 20, 22** must be electrical conductors. The current invention does not limit the materials comprising the test coupon to electrical conductors.

(4) The current invention is classified in a crowded field, that of dynamic testing of materials. As such, any step forward should be regarded as a significant improvement and addition to the field. The use of different materials, as disclosed in the present invention, represents such a step forward and should be regarded as a patentable improvement.

Applicant has amended Claim 2 as an independent claim for a test-coupon comprised of a material other than that comprising the structural member being tested.

The Rejection of Claim 3

The Examiner has rejected Claim 3 under 35 U.S.C. 103(a) as being unpatentable over Craeger (5,425,274) in view of Perez (5,528,151).

Applicant has requested that the Examiner cancel Claim 3.

The Rejection of Claim 4

The Examiner has rejected Claim 4 under 35 U.S.C. 103(a) as being unpatentable over Craeger (5,425,274) in view of Perez (5,528,151).

Applicant respectfully requests reconsideration of this objection, as now applicable to (currently amended) Claim 4, for the same four (4) reasons Applicant requested the Examiner to reconsider Claim 2.

REMARKS (continued)

Applicant has amended Claim 4 to claim a test-coupon comprised of a material other than that comprising the structural member being tested and having ligaments of equal length and width.

The Objections to Claims 5 and 6

The Examiner has objected to Claims 5 and 6 because of certain informalities.

Applicant has corrected the spelling errors with respect to Claim 5 and respectfully requests that Claim 5 (currently amended) be reconsidered. Since (original) Claim 6 is dependent upon Claim 5, Applicant respectfully requests that (original) Claim 6 be reconsidered at the same time.

The Rejection of Claim 7

The Examiner has rejected Claim 7 under 35 U.S.C. 102(b) as being anticipated by Craeger (5,425,274).

Applicant respectfully requests reconsideration of this rejection, as now applicable to (currently amended) Claim 7, for the following reasons:

- (1) Craeger teaches a fatigue monitoring device comprising a fuse 1 made of the same material as the structural member to be monitored and is formed from a thin integral blank of sheet material 2 (col. 3, lines 37-40). Accordingly, the Craeger invention requires that all of the fuses be uniformly cast from a single material. However, (Amended) Claim 7 of the present invention contemplates ligaments (i.e., fuses) cast from different materials with different elastic moduli. Since (Amended) Claim 7 discloses a flat test-coupon composed of two or more materials and Craeger discloses a fuse composed of only one material (Claim 1; col. 6, lines 17-19), the current invention should be patentable over the cited prior art.

REMARKS (continued)

(2) Craeger teaches a fatigue monitoring device with fuses that fail in sequence at different percentages of the fatigue life of the fuse material (col. 5, lines 37-39). The fuses fail at different percentages of the fatigue life of fuse material (col. 4, lines 67-68; col. 5, lines 1-3) because (a) the fuse thickness varies (Figs. 4-7) or (b) the cut outs are different (Fig. 1). The elastic modulus of the fuse remains constant because the elastic modulus is a unique characteristic of the material comprising the fuse and it is independent of fuse thickness or fuse shape. The current invention contemplates a test-coupon composed of two or more materials each having its own unique, characteristic elastic modulus.

Applicant has amended Claim 7 to claim a test-coupon with ligaments composed of two or more different materials having different elastic moduli.

The Rejection of Claim 8

The Examiner has rejected Claim 8 under 35 U.S.C. 103(a) as being unpatentable over Craeger (5,425,274) in view of Perez (5,528,151).

Applicant respectfully requests reconsideration of this rejection, as now applicable to (currently amended) Claim 8, for the same two (2) reasons Applicant requested the Examiner to reconsider Claim 7.

Applicant respectfully requests reconsideration of this rejection, as now applicable to (currently amended) Claim 8, for the same four (4) reasons Applicant requested the Examiner to reconsider Claim 2.

The Allowance of Claims 9-16

The Examiner has allowed (original) Claims 9-16.

REMARKS (continued)

The Rejection of Claim 17

The Examiner has rejected Claim 17 under 35 U.S.C. 103(a) as being unpatentable over Craeger (5,425,274) in view of Crites (3,786,679).

Applicant respectfully requests reconsideration of this rejection, as now applicable to (currently amended) Claim 17, for the following reasons:

(1) The Examiner has pointed out that Craeger discloses the method step of rigidly attaching the test fuse to the structural member being tested (col. 3, lines 58-63; col.4, lines 1-8). The present invention discloses isolated stress testing of the test-coupon (Application Nr. 10,700,236: page 15, lines 1-3, 12-14) whereby the step of rigidly attaching the test-coupon to the structural member has been deleted. Applicant has submitted (currently amended) Claim 17 to reflect this deleted step.

(2) The Examiner has also pointed out that Craeger does not teach the method step of subjecting said test-coupon and said structural member to repetitive stress loading of a constant displacement but that Crites does teach the method step of subjecting a test coupon 11 and said structural member 61 to repetitive stress loading of a constant displacement (col. 4 lines 60-68; col. 5, lines 1-3, {Fig.4}). As such, Crites, like Craeger teaches that the stress loading test must be performed on a test coupon that is attached to the structural member being tested. The present invention discloses isolated stress testing of the test-coupon whereby the step of rigidly attaching the test-coupon to the structural member has been deleted. Applicant has submitted (currently amended) Claim 17 to reflect this deleted step.

REMARKS (continued)

The Rejection of Claim 18

The Examiner has rejected Claim 18 under 35 U.S.C. 103(a) as being unpatentable over Craeger (5,425,274) in view of Crites (3,786,679).

Applicant respectfully requests reconsideration of this rejection, as now applicable to (currently amended) Claim 18, for the following reason:

(1) The Examiner rejected Claim 18 as being unpatentable over Craeger in view of Crites which teaches a test coupon **11** composed of a material other than that composing said structural member **61** (col. 3 lines 32-33). Applicant has amended Claim 17 by deleting the method step of rigidly attaching the test-coupon to the structural member being tested. Claim 18 (currently amended) is now a dependent (on currently amended Claim 17) claim that discloses modifications to the cut-out portions of the test-coupon disclosed in Claim 17 (currently amended) such that the ligaments are all of equal length. The test-coupon, however, is composed of the same material as the test-coupon disclosed in Claim 17 (currently amended) and Applicant believes this is sufficient to overcome the Examiner's rejection.

Applicant has submitted Claim 20 (new) as a dependent (upon currently amended Claim 17) claim which claims a method according to Claim 17 (currently amended) using a test-coupon with modified cut-out portions defining the ligaments.

The Rejection of Claim 19

The Examiner has rejected Claim 19 under 35 U.S.C. 103(a) as being unpatentable over Craeger (5,425,274) in view of Crites (3,786,679).

Applicant has requested that the Examiner delete Claim 19.

REMARKS (continued)

New Claims 21 and 22

Applicant has submitted (new) Claims 21 and 22 to describe a method for making the original measurements of fatigue strength and fatigue damage of a structural member of known or unknown composition. The claims describe the method for plotting the first S-N curve for the structural member being tested.

Prior Art of Record

In response to the Examiner's comments in paragraph 12, Duerr and Brull both teach devices that require that the test elements be cracked, notched or otherwise structurally weakened to ensure that the test element experienced material failure before the structure being tested. The present invention does not contain this limitation and, as such, Applicant believes that the present invention teaches away from this prior art.

CONCLUSION

For all the above reasons, Applicant submits that the claims are now in proper form, and that the claims all define patentably over the prior art. Therefore, Applicant submits that this application is now in condition for allowance, which action Applicant respectfully requests.

CONDITIONAL REQUEST FOR CONSTRUCTIVE ASSISTANCE

Applicant has amended the claims of this application so that they are proper, definite, and define novel structure which is also unobvious. If for any reason this application is not believed to be in full condition for allowance, Applicant respectfully requests the constructive assistance and suggestions of the Examiner pursuant to M.P.E.P § 2173.02 and § 707.07 (j) in order that the undersigned can place this application in allowable condition as soon as possible and without the need for further proceedings.

Very respectfully,




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CERTIFICATE OF MAILING

I hereby certify that this correspondence and attachments will be deposited with the United States Postal Service by First Class Mail, postage prepaid, in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, Post Office Box 1650, Alexandria, VA 22313-1450 on the date below.

Date January 8, 2005

Inventor's Signature 

AMENDMENT TO THE DRAWINGS

In response to the Examiner's comments in paragraphs 1 and 2, Figures 1, 2, and 4 have been corrected to show rounded corners described by ninety degree arcs joining any two adjacent sides. Pursuant to 37 CFR §1.121(d), the corrected drawings showing the proposed changes in red are hereby submitted to the Examiner for approval. Applicant has also submitted new drawings (Figures 1-6) in compliance with 37 CFR § 1.84 (c).

The corrected drawings and the new figures are attached to this Amendment B.

Annotated Marked-Up Drawing

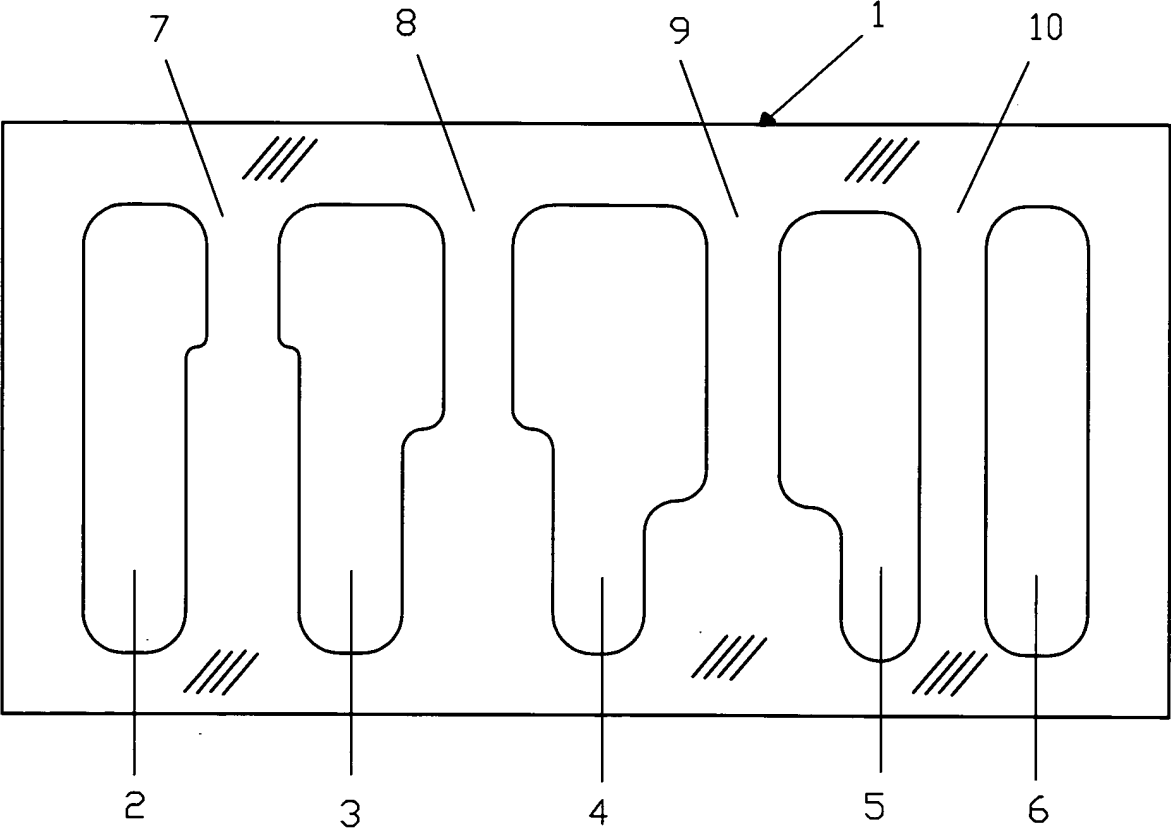


FIG. 1

Annotated Marked-Up Drawing

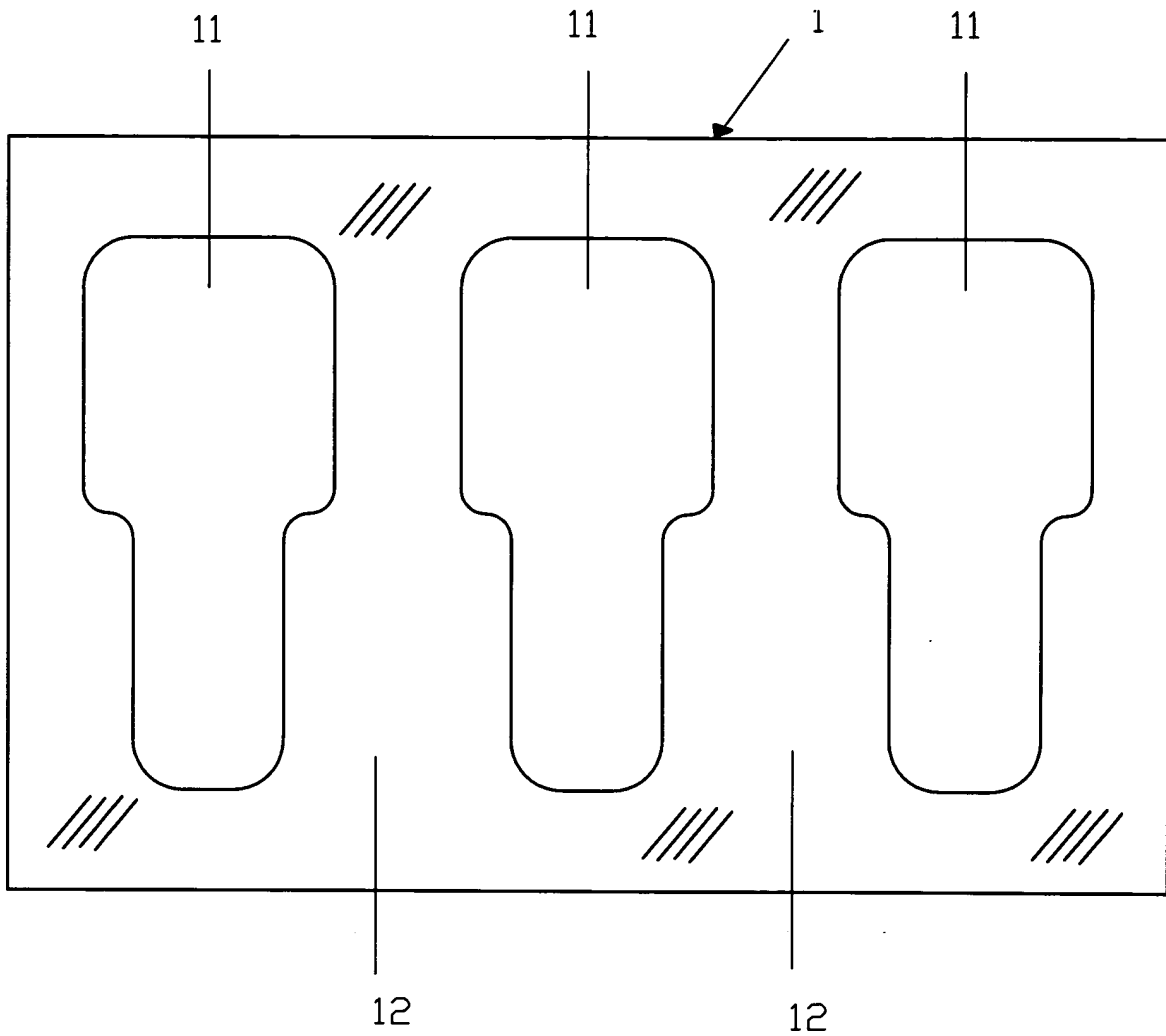


FIG. 2

Annotated Marked-Up Drawing

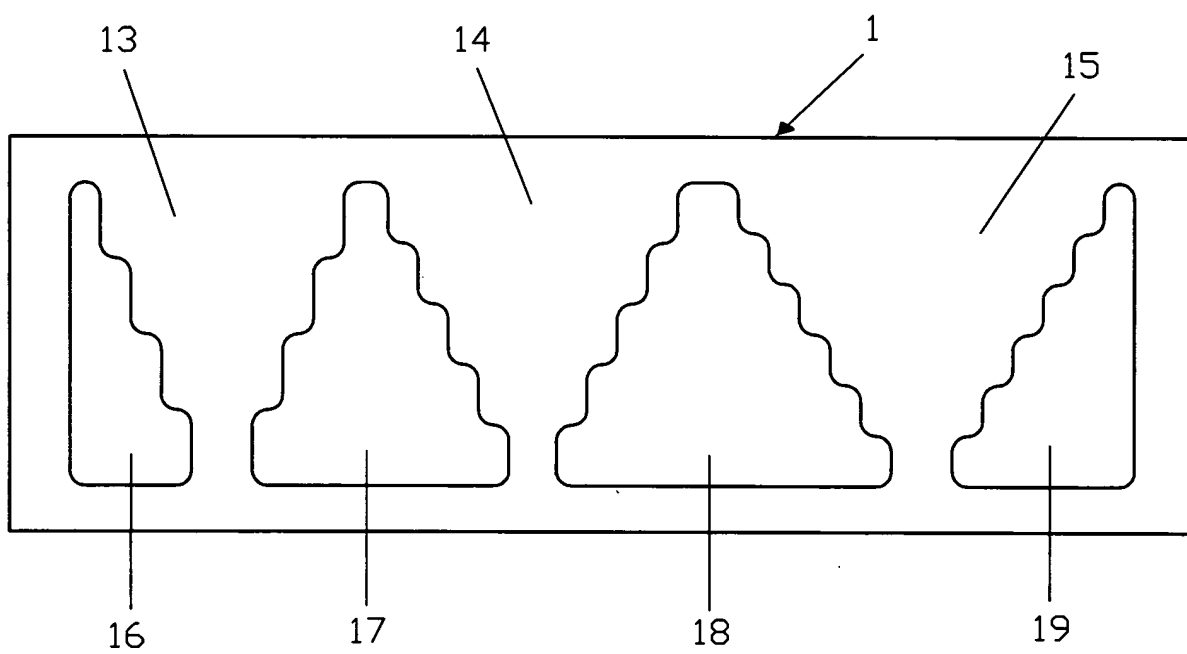


FIG. 4